Energy Recourses in Japan

http://www.eia.doe.gov/cabs/Japan/pdf.pdf

This study uses optimization modeling to study efficient ways to integrate renewable energy systems to provide electricity and heat in rural Japan.

renewable electricity can be provided by a combination of wind, photovoltaic, and biomass. Heat can be provided by petroleum, LPG, and geothermal heat pumps (GHPs).

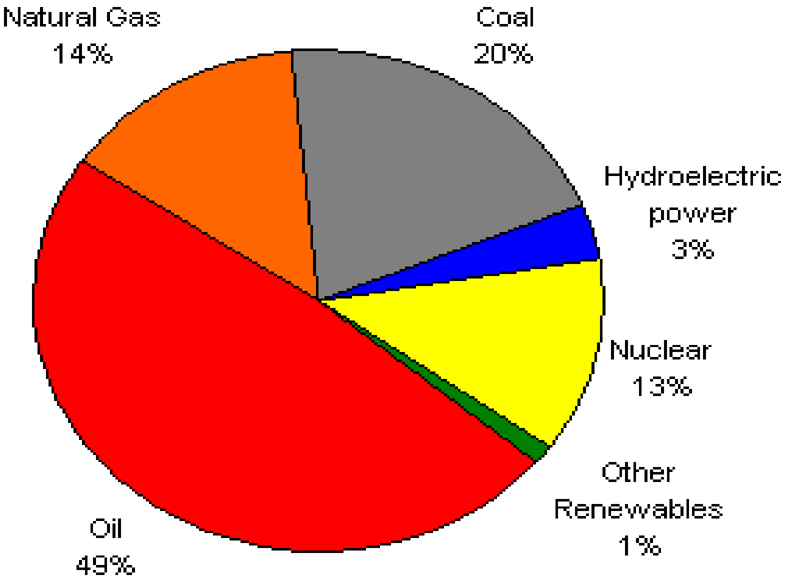
Japan has virtually no domestic oil or natural gas reserves and is the second-largest net importer of crude oil and largest net importer of liquefied natural gas in the world. Including nuclear power, Japan is still only 16 percent energy self-sufficient. Japanese companies have actively pursued upstream oil and natural gas projects overseas in light of the country's lack of domestic hydrocarbon resources. Japan remains one of the major exporters of energy-sector capital equipment and Japanese companies provide engineering, construction, and project management services for energy projects around the world. Japan has a strong energy research and development program that is supported by the government. The Japanese government actively pursues energy efficiency measures in an attempt to increase the country's energy security and reduce carbon dioxide emissions.

Japan is the third largest oil consumer in the world behind the United States andChina, and the second largest net importer of oil*.*

Location of Japan

Oil is the most consumed energy resource in Japan, although its share of total energy consumption has declined by about 30 percent since the 1970s Japan is the third largest consumer of nuclear power in the world, after the United States and France. Hydroelectric power and renewable energy account for a relatively small percentage of total energy consumption in the country. Total energy consumption from 2003 to 2030 is forecast to grow by 0.3 percent per year on average, relatively small as compared to China's forecast growth rate of 4.2 percent per year on average according to EIA data (International Energy Annual)

Total Energy Consumption in Japan, by Type (2005)

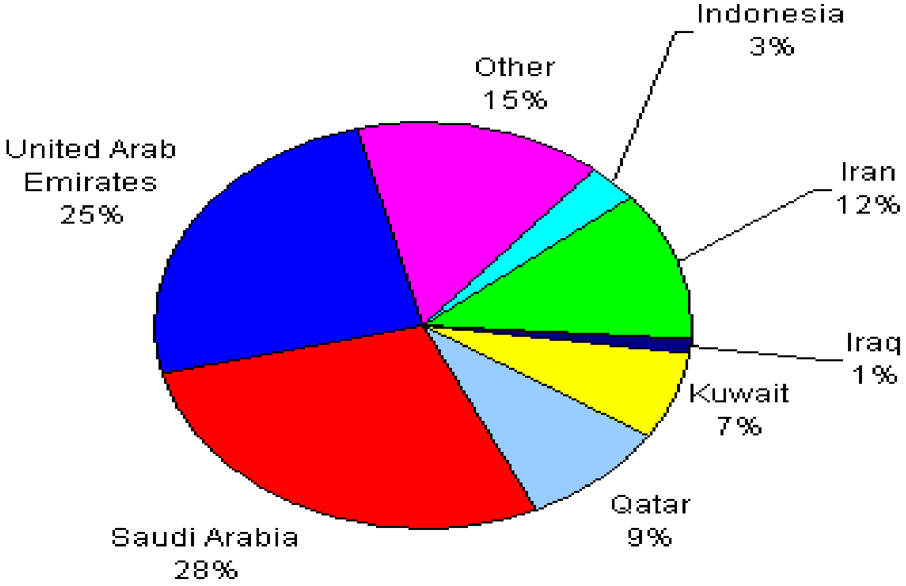


Source: EIA International Energy Annual 2005

Oil

Japan is the third-largest oil consumer in the world, in spite of its limited domestic oilreserves and production.

As we can see here that Japan import crude oil from countries such as: K.S.A….etc



Oil Imports by Source, Japan 2007

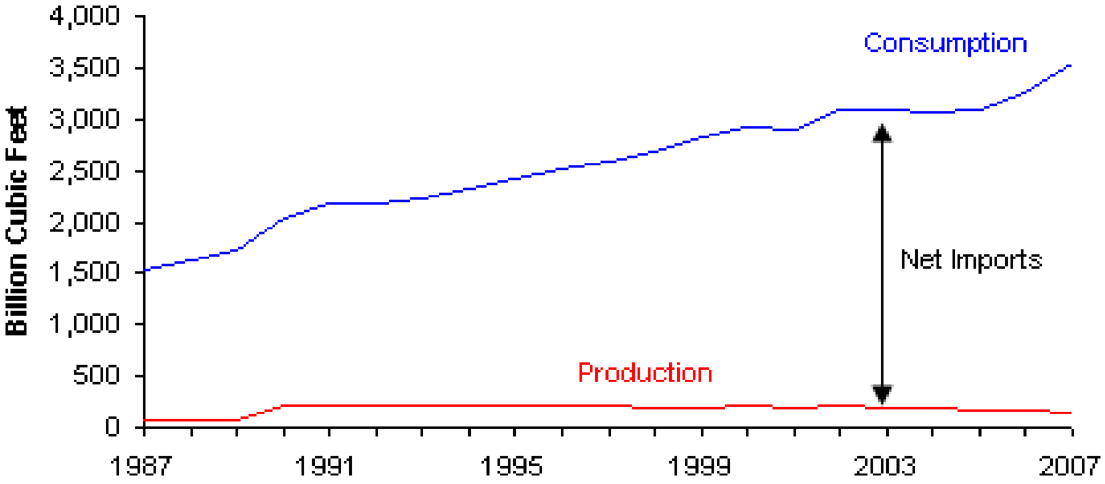
Source: International Energy Agency (IEA)

Natural Gas

Japan is the largest importer of liquefied natural gas in the world.

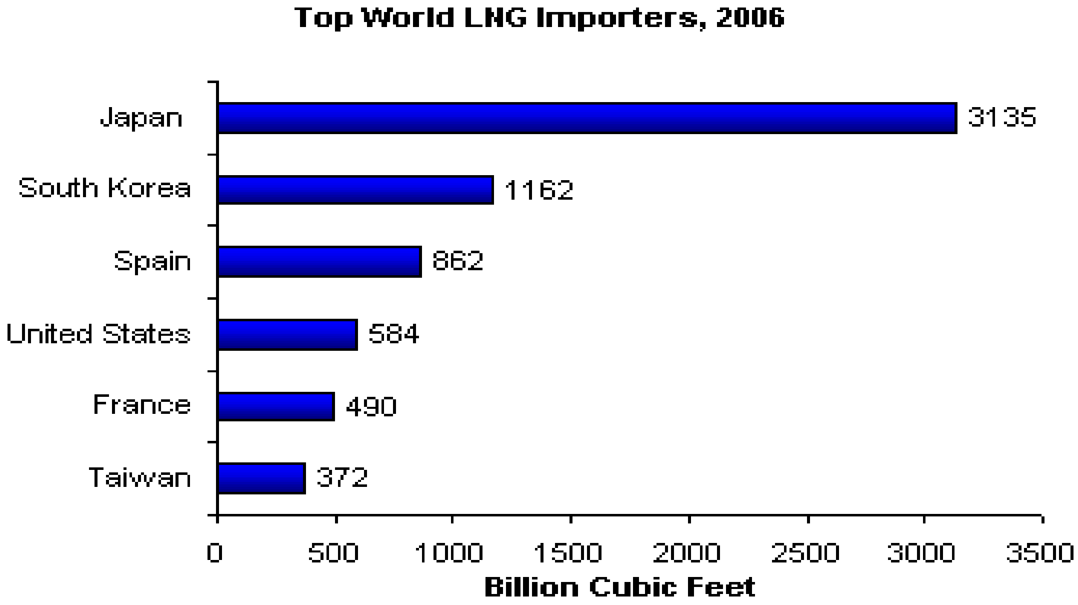
According to *Oil &Gas Journal (OGJ)*, Japan had 738 billion cubic feet (Bcf) of proven natural gas reserves as of January 2008. Natural gas proven reserves have declined since 2007, when they measured 1.4 trillion cubic feet (Tcf), according to *OGJ*. According to preliminary data, Japan produced 132 Bcf of natural gas in 2007, down slightly from 174 Bcf in 2006.

Japan's Natural Gas Production and Consumption, 1987-2007



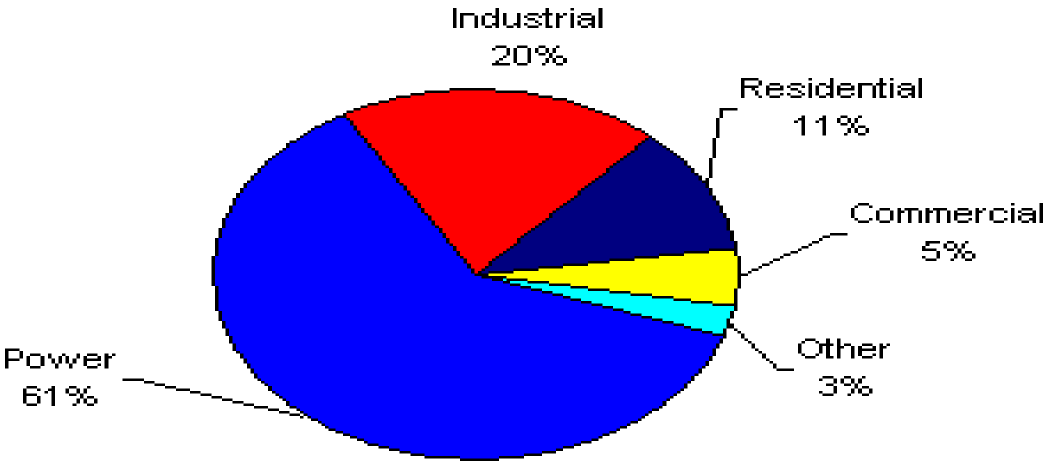
Source: U.S. Energy Information Administration

Despite limited natural gas resources, Japan is a large natural gas consumer and must rely on imports for virtually all of its natural gas needs. Lacking international pipeline connections, today Japan is the largest importer of liquefied natural gas (LNG) in the world and currently accounts for about 40 percent of global LNG imports



Source: U.S. Energy Information Administration

According to industry reports. The power sector is the largest consumer of LNG, followed by the industrial sector. Increased use of natural gas within these sectors has been one of the main drivers of growth in natural gas demand in Japan.



LNG Consumption by Sector, Japan 2007

Source: FACTS Global Energy Gas Insights, March 2008

Thermal Power

Initially Japan used coal for thermal power generation, followed later by a reliance on oil. Today, a diverse range of fuels including coal, oil and liquefied natural gas (LNG) are used and still fulfill an important role in generating facilities. In particular, recently, in response to global environmental concerns to lower the amount of CO2 emissions, the use of LNG is being encouraged.
In efforts to enhance thermal efficiency further, combined-cycle generating systems using a gas turbine and a steam turbine are being introduced. As a result, gains in thermal efficiency have reached 49%. In the future, thermal efficiency gains will exceed 50% by means of an ultra-efficient gas turbine, while other promising new technologies such as coal gasification in combined power generating systems will continue to be developed.

Comparing between Japan, USA, and Germany in using Wind Power

Japan’s government drafted a plan in May 2005 to boost wind power generation to 3 million kilowatts in the five years to March 2011. As of March, Germany had 14.61 million kilowatts, the U.S. 6.35 million kilowatts and Japan 1.07 million kilowatts. Power from Germany’s 17,600 wind turbines can meet about 6 percent of the nation’s demand.

http://www.alternative-energy-news.info/japan-wind-power-project-threatened/